



DISPLAYS FAQ

Q I've heard that DLP projectors all use the same chip to produce their images. How does this work?

A DLP projectors all use Texas

Instruments chips. The chips have one mirror per onscreen pixel, and the size of the chip depends on the native resolution.

So a projector with a native resolution of 1,024x768 uses a 0.7" DLP chip.

The technology works by bouncing light off every mirror, each of which can be moved individually. If a mirror is left stationary, the light bounces off and is displayed onscreen as bright white. If a mirror is angled away, light doesn't get through and the pixel is displayed as black. Shades are delivered by rapidly switching a mirror on and off. The more time it's on, the lighter the shade of grey. Colour is achieved by shining the light through a spinning colour wheel three times: once each for red, green and blue.

The small chip size means projectors can be made very small. It keeps manufacturing costs down as the chip costs the same whatever the screen size. More details are at www.dlp.com.

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▲ DLP chips are made up of thousands of tiny mirrors

REVIEW DLP PROJECTOR

INFOCUS ScreenPlay 5000

RATING ★★★★★

PRICE £1,004 inc VAT

SUPPLIER www.pixmania.co.uk

DETAILS www.infocus.com



With High Definition (HD) TV around the corner, it's worth thinking about when you're going to buy a projector. InFocus' ScreenPlay 5000 means you don't have to worry because this projector has an HDCP-compliant DVI connector on the back and a native resolution of 1,280x720, so it will support HD input.

The DVI connector on the rear is an M1-DA, which requires a special cable that accepts standard DVI and USB inputs. InFocus provides a cable in the box, but if it breaks or you lose it, a DVI adaptor will cost you £20. We think it's better if manufacturers stick to standard inputs, and InFocus could easily have provided separate DVI and USB inputs. Fortunately, everything else on the projector is standard. There are component, S-video, composite and D-sub inputs to take care of just about any peripheral you'll need to connect.

We tested using a PC on the digital input. The projector uses three 0.7" LCD screens, so it doesn't suffer from the rainbow effect that plagues many DLP projectors. However, it uses older technology than Epson's EMP-600W (see our Hotlist below) and offers only a 1,200:1 contrast ratio. It's also not as bright, with a maximum output of 1,100 ANSI lumens.

At first, the picture looked terrible and there was too much green in the images produced. We

had to calibrate the colour levels manually to get better colour. Even then, colours were muted and didn't have the same depth or warmth as those of other projectors we have tested. Our greyscale test was good, but we detected slight banding. HD video looked fine at the projector's native resolution, but we would have preferred more vibrant colour.

We played a DVD through the component input and found the ScreenPlay 5000 upscaled it well, so there was no aliasing. However, there was a lot of noise in the picture and areas of high contrast obscured fine detail.

This is around £200 cheaper than Epson's projector, but sadly the quality is not as good.

David Ludlow

✓ Large picture; HD compatible

✗ Proprietary DVI connector; muted colours

SPECIFICATIONS Three-LCD projector, 35-270" screen size, 1,280x720 resolution, M1-DA (DVI), S-video, D-sub, component and composite inputs, 2,000 hours lamp life, 1,200:1 contrast ratio, 1,100 ANSI lumens. Part code ScreenPlay 5000

HOTLIST 26" LCD TV

SAMSUNG LE26R51BD



RATING ★★★★★

PRICE £749 inc VAT

SUPPLIER www.dixons.co.uk

DETAILS www.samsung.co.uk

Samsung's 26" HD TV possesses stunning good looks and oozes quality. It receives digital and analogue TV stations, so there's no need for a Freeview box. Video inputs look stunning through this set, giving sharp and vibrant images. This TV has support for HD video, making it remarkable value.



SPECIFICATIONS 26" LCD TV, 1,360x768 resolution, HD Ready, one HDMI, one VGA, two SCART, one component, one S-video, headphone. Part code LE26R51BD

HOTLIST 20.1" LCD

AOC LM2028



RATING ★★★★★

PRICE £390 inc VAT

SUPPLIER www.pcnextday.co.uk

DETAILS www.aocmonitor.com

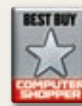
AOC's LM2028 is cheaper than many 19" screens, but its 20.1" panel doesn't just give more display space, it provides a higher resolution of 1,600x1,200, too. It also produces a decent image, although whites aren't as true as we'd like. Unless you need perfect colour accuracy, though, it's a bargain.



SPECIFICATIONS 1,600x1,200 native resolution, D-sub, DVI. Part code TFT2090PS+

HOTLIST HOME CINEMA PROJECTOR

EPSON EMP-600W



RATING ★★★★★

PRICE £1,293 inc VAT

SUPPLIER www.247av.com

DETAILS www.epson.co.uk

With three LCDs and a new iris capable of producing a 5,000:1 contrast ratio, Epson's EMP-600W is one of the best-quality projectors we've seen. It's HD compatible and has all the inputs you could ever want. Its menu system is a little confusing, but it's still an excellent choice.



SPECIFICATIONS Three-LCD projector, 60-300" screen size, 1,280x720 resolution, HDMI, SCART, S-video, D-sub, component and composite inputs, 1,700 hours lamp life (3,000 hours in low lamp mode), 5,000:1 contrast ratio. Part code EMP-600W

REVIEW DLP PROJECTOR

TOSHIBA TDP-P8

RATING ★★★★★

PRICE £1,020 inc VAT

SUPPLIER www.pcwb.com

DETAILS www.toshiba.co.uk

The main advantage of DLP is that projectors using the technology require relatively small chips manufactured by Texas Instruments (see FAQ opposite). It's the optics and bulb that govern the size and brightness.

Toshiba's TDP-P8 projector, which has a native resolution of 1,024x768, uses a 0.7" chip. The small chip size means the TDP-P8 can be squeezed into a tiny chassis. It's one of a new range of 'pocket' projectors such as HP's MP2220, which we reviewed in *What's New*, *Shopper* February 2006.

The TDP-P8 comes with its own case, which is no bigger than a handbag. The projector weighs just 1kg, so you can easily move it from meeting to meeting or take it on the road. It's hard to conceive that such a small package houses a projector.

It's great on the inside, too. It has S-video, composite and D-sub inputs, so it's definitely one for business, but it also has an impressive range of specifications. It's rated at 1,500 ANSI lumens so it's bright enough to use in a meeting room lit with fluorescent lighting, and its native resolution of 1,024x768 is more than enough for PowerPoint presentations. The DLP chip gives an impressive 2,100:1 contrast ratio (slightly higher than DLP's usual 2,000:1). There's also automatic keystone correction, so placing the projector on a desk is all the setting up you need to do.



The choice of inputs includes D-sub, S-video and composite. Given the projector's target audience, it's most likely that the D-sub input will be used when attached to a notebook in order to give presentations.

In tests it proved a fantastic projector. Our greyscale test, which is usually very difficult for projectors to deal with, was excellent. The gradation was smooth from a dark, rich black to a bright white. A lot of projectors and displays exhibit banding on this pattern, but the TDP-P8 had none.

Its colour wheel test results were very good, too. There were marginal problems with the yellow portion of the test, which DLP projectors seem to struggle with, but the result was much better than with other projectors we've seen. The rest of the colour spectrum came out very well.

The rainbow effect can often be a problem, but the TDP-P8 behaved well. On a high-contrast screen, viewing our test pattern with a block of black surrounded by a white border, it was noticeable. When we switched to more realistic screens, though, the problems disappeared.

Running high-definition movies through the projector was no problem. The projector coped admirably, displaying a strong vibrant picture, and there was no evidence of the rainbow effect even with fast-moving scenes.

The TDP-P8 connects to your PC via USB, so the remote control can operate as a mouse. It's comfortable to use and is held with a trigger-operated left-click, making it a good choice for presentations. You can also right-click and move the cursor, although it's fiddly to do the latter. For fine Windows control you'll still be better off plugging in a dedicated mouse.

The lamp life of 2,000 hours isn't the best we've seen, but the small case tends to cut down on lamp life due to the extra heat. You can boost this to 3,000 hours by switching the projector to ECO mode. This reduces brightness, but it's fine for a moderately light meeting room. Heat is a big problem in tiny projectors and the TDP-P8 gets very hot, though not as hot as HP's MP2220. Fortunately, it manages to keep quiet whenever it's turned on.

This projector's small size and excellent image quality are appealing factors for anyone who has to travel and do lots of presentations, and it's also handy to take home for weekends. Having said that, better-value, better-quality projectors are available if size isn't an issue.

David Ludlow

 **Tiny; excellent image quality**
 **Lamp life could be better; gets hot**

SPECIFICATIONS DLP projector, 31.7-300" screen size, 1,024x768 resolution, S-video, D-sub and composite inputs, 1,500 ANSI lumens, 2,000 hours lamp life (3,000 in ECO mode), 2,100:1 contrast ratio, auto keystone correction. **Part code** TDP-P8

HOTLIST 17" LCD

ACER AL1751


RATING ★★★★★

PRICE £188 inc VAT

SUPPLIER http://uk.insight.com

DETAILS www.acer.co.uk

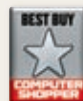
Its reflective coating makes the AL1751 display dark, rich blacks and vibrant colours. It passed all our image tests with ease, and is one of the best-quality monitors we've reviewed. It has DVI and D-sub inputs, and copes with both well. With its 8ms response time, it's ideal for gamers but at this price, it's a great buy for anyone.



SPECIFICATIONS 17" LCD, 1,280x1,024 resolution, 8ms response time, 500:1 contrast ratio, stereo speakers, DVI and D-sub inputs. **Part code** ETL4008.011

HOTLIST 19" LCD

BELINEA 10 19 25


RATING ★★★★★

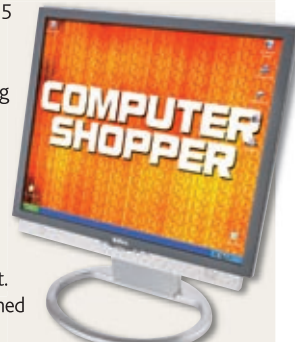
PRICE £200 inc VAT

SUPPLIER www.247av.com

DETAILS www.belinea.co.uk

Belinea's 10 19 25 might be fairly ugly, but it has several redeeming features including excellent image quality. Colours are balanced and clean with an even backlight. Detail is maintained in dark areas, although skin tones lack warmth.

If you want a decent 19" LCD that doesn't cost a fortune, this is an excellent buy.



SPECIFICATIONS 1,280x1,024 native resolution, D-sub, DVI, speakers, three-port USB. **Part code** 10 19 25

HOTLIST 32" LCD TV

SAMSUNG LE32E41BD


RATING ★★★★★

PRICE £931 inc VAT

SUPPLIER www.empiredirect.co.uk

DETAILS www.samsung.co.uk

The LE32E41BD is a gorgeous TV with image quality to match. It supports analogue and digital TV, and is incredibly easy to set up. It has a large range of inputs, so you can connect any device to it. Picture quality was excellent across the board, with HD video looking particularly good. It's great value for the size of the screen.



SPECIFICATIONS 32" LCD TV, 1,360x768 resolution, HD Ready, one HDMI, one VGA, two SCART, one component, one S-video, one composite headphone. **Part code** LE32E41BD



REVIEW 20.1" DISPLAY

SONY
SDM-S205F

RATING ★★★★★

PRICE £560 inc VAT

SUPPLIER Sony 08705 424424

DETAILS www.sony.co.uk

If you want to run your PC at a resolution of 1,600x1,200, you'll need a 20.1" LCD such as Sony's SDM-S205F. Its thin bezel draws attention to the screen and makes it look a lot larger than 19" models.

There's a gas-lift stand to adjust its height, but no pivot option. You can ditch the stand completely if you prefer and use any standard VESA mount.

As you'd expect for a screen of this size, there are analogue and digital inputs, though digital gives the best-quality input. The display's native resolution is 1,600x1,200. Other input resolutions are upscaled to fill the whole screen, except 1,200x1,024. In this mode, our screen stayed at its native resolution and displayed the Windows desktop in the middle of the screen with a black border around it. You don't suffer a loss of quality, but it's strange that there's no way to switch to a full-screen mode.

Colour reproduction is excellent and pictures look vivid. Our colour wheel test showed near-perfect colour gradation and our greyscale test showed excellent transitions between black and white. Viewing angles are superb and the panel is evenly lit. However, if you look closely at brightly lit parts of the screen, there's some light mottling.



If you want to adjust the picture, there's an excellent choice of controls. You can adjust the backlight's brightness, preventing eyestrain and saving money. The three ECO modes have preset backlight brightness levels, which should be fine for most users.

Large screens are usually quite slow, but the SDM-S205F's 16ms response time is pretty fast. It's a little expensive, though, and AOC's LM2028 (see the Hotlist on page 30) is much better value.

David Ludlow

✓ Excellent image quality; high resolution

✗ Expensive

SPECIFICATIONS 20.1" widescreen LCD, 1,600x1,200 resolution, 16ms response time, D-sub, DVI-I inputs. **Part code** SDM-S205F

REVIEW 24" WIDESCREEN MONITOR

ACER
AL2416W

RATING ★★★★★

PRICE £682 inc VAT

SUPPLIER www.247av.com

DETAILS www.acer.co.uk

The AL2416W's 24" panel is almost as big as a living room TV but it outstrips all but the most expensive televisions with its native resolution of 1,920x1,200. The resolution is so high, you can easily work on two documents side by side.

The AL2416W is attractive, with a neat silver bezel and the controls tidily lined up under the middle of the screen. Surprisingly for such an expensive monitor, though, there's only a single analogue D-sub input. We'd expect at least a DVI input and perhaps even component or S-video inputs so the monitor can be used for entertainment as well. That said, the picture quality with the analogue connection was superb. The AL2416W adjusts the image automatically when you alter resolution. Our colour wheel test looked amazing, with colours evenly distributed and blending neatly into each other.

The greyscale test was slightly less impressive, with noticeable banding to the darker parts. Still, the lighter shades had good gradation and smooth transitions. The screen was evenly lit.



We ran some High Definition (HD) videos through the display. Even with the PC upscaling them to match the high native resolution of the monitor, the quality of the picture was high. Colours were vibrant and rich, and the AL2416W displayed the moving images smoothly.

This monitor is excellent quality, but there's no digital input. If you can do without it, the AL2416W is a fair bit cheaper than the competition.

David Ludlow

✓ Good value compared to competing screens; high-quality picture

✗ Only an analogue input

SPECIFICATIONS 24" widescreen LCD, 1,920x1,200 resolution, 6ms response time, 1,000:1 contrast ratio, D-sub input. **Part code** ET.L6102.002

CHOOSING AN...

LCD
MONITOR

Follow our simple step-by-step guide to buying the perfect LCD

1 LCD screens (also known as TFTs) offer a range of benefits over conventional CRT models, including compact designs and sharp, straight images.

However, LCD technology also has its disadvantages. Image quality can deteriorate at acute viewing angles, while the picture can appear fuzzy at resolutions below the native one. LCDs sometimes suffer from defective or 'dead' pixels and may produce distortions when displaying finely textured patterns.



2 A basic 17" LCD monitor (one with the specification shown in grey below) costs from £135, although similarly specified screens can cost as much as £300. The best models avoid the pitfalls mentioned above.

3 All 17" LCD screens have a native resolution of 1,280x1,024 pixels, which is fine for most applications. If you want a larger viewing area – useful for creative software – a 19" LCD is necessary. These start at around £300, but you'll need to spend £500 to get a 20" model with a 1,600x1,200 resolution. For entertainment, you'll need a widescreen monitor; 17" models start at around £300.

4 A video graphics array (VGA) input means the display will work with any PC, but a digital video interface (DVI) input removes unnecessary digital-to-analogue conversion of the picture, potentially improving sharpness and colour accuracy while eliminating interference. A DVI-equipped graphics card is required to use this.

5 Extras may include a USB hub, speakers, a microphone and even a TV tuner, which allows the display to double as a standalone TV.

FILL IN YOUR SPECS HERE
(Recommended minimum in grey)

IMAGE SIZE: 17"
NATIVE RESOLUTION: 1,280x1,024
INPUTS: VGA
EXTRAS: